

*Stated Meeting, October 15, 1880.*

Present, 12 members.

President, Mr. FRALEY, in the Chair.

Letters of envoy were received from the Botanical Garden at St. Petersburg, and the Meteorological Office in London.

Donations for the Library were received from the Botanical Garden at St. Petersburg, the Zoölogischer Anzeiger, Prof. Otto Schmidt of Strasbourgh; the Geographical Societies of Paris and Bordeaux; Revue Politique; London Nature; Chemists' Journal; Canadian Naturalist; Essex Institute; Harvard College Library; American Antiquarian Society; American Journal of Science; Franklin Institute; American Journals of the Medical Sciences, and of Pharmacy; Mr. Russell Thayer; the U. S. Coast Survey; Cincinnati Society of Natural History, and the Ministerio de Fomento of Mexico.

A report of the Committee on the Magellanic Prize essay was called for.

The death of Prof. Benjamin Pierce, at Cambridge, Oct. 6, aged 71, was announced by the Secretary, who read a notice of the deceased from the pen of Thos. Hill, late President of Harvard College.

Dr. Seidensticker described an amusing specimen of English poetry, which was read by the Secretary at his request; a dedication to the Chancellor of the University at Lund, and Senator of the Kingdom of Sweden, the most honorable Lord Count Charles Gyllenborg, *Discertatio Gradualis de Plantatione Ecclesiæ Svecanæ in America*, by Tobias Er. Biörck, Americano-Dalekarleus. Upsalæ Literis Werneri-anis, A. D. 1700.

Mr. Lesley drew attention to Dr. P. J. J. Valentini's very satisfactory investigation of the probable fabrication of Landa's Mayan alphabet just published in the Proceedings of the American Antiquarian Society (No. 75, page 59 *et*

seq.), with the figures of the Landa text and from other sources.

Mr. Lesley said that so careful and precise a train of argument has seldom been pursued in a difficult case of Philology in dispute, and Dr. Valentini's conclusion will probably be generally accepted that Bishop Landa obtained from his catechumens the best figures which their imaginations suggested to them at the time for representing the vowels and consonants as he pronounced these before them; therefore, that his list of so-called alphabetic figures, being more or less the invention of the occasion, had no scientific or historic value then, and cannot now be used for deciphering Mayan or Mexican picture-writing in an alphabetic sense.

But had Dr. Valentini compared Landa's figures with those of Egypt, he would have been surprised at certain resemblances of a remarkably radical character; although these probably would not have led him to abandon his train of argument; as the resemblances cannot be considered sufficiently valid to oblige us to a different conclusion.

It is nevertheless astonishing to notice that while Landa's *first* B is, according to Valentini, represented by a foot-print, and that *path* and *foot-print* are pronounced *Be* in the Mayá dictionary, the Egyptian sign for B was the human leg.

Still more surprising is it that the H of Landa's alphabet is a tie of cord; while the Egyptian H is a twisted cord. What connection can there be between a cord and the aspirate? Dr. Valentini explains, that in the Dresden codex a doubled-up rope frequently occurs, and that *tying-up days* to form a year was a common Mexican chronological expression. *Haab* is Mayan for *year*; and Valentini thinks that the rope symbol for *year* was given to Landa as the best letter *Hu* which his pupils could invent for him on the spur of the moment.

But the most striking coincidence of all occurs in the coiled or curled line representing Landa's U; for it is absolutely identical with the Egyptian curled U. The Mayan word for *to wind* or *bend* is *Uuc*; and that fact satisfies Dr. Valentini; but why should Egyptians, confined as they were to the Valley of the Nile, and abhorring as they did the sea and sailors, write their U precisely like Landa's alphabetic U in Central America? Birch gives *ha-ti* as the name of the Egyptian coiled U and of *the tow-line of a boat*.

There is one other remarkable coincidence between Landa's and the Egyptian alphabets; and by the way, the English and other Teutonic dialects have a curious share in it. Landa's D (T) is a disc with lines inside the four quarters, the allowed Mexican symbol for *day* or *sun*. So far as the sound is concerned the English *day* represents it; so far as the form is concerned the Egyptian "cake" ideograph for (1) *country*, and (2) *the sun's orbit*, is essentially the same. The Egyptian name of the latter is read *sen-nu*. Brugsch gives *S<sup>c</sup>en* as *circumference*, periphery, the turn of the shadow, *S<sup>c</sup>ennu* the entourage of a person, *S<sup>c</sup>na* to make return, all of them with the circle as a determinative.

Mr. Lesley described the results of a recent visit to Saltville, in Virginia, made by Mr. Henry Carvil Lewis, of Germantown, on the suggestion that Tertiary shells might be found at the eastern corner of the little plain on which the salt and gypsum works stand.

Mr. Lewis reported that he had not only carefully collected all the univalves and bivalves of the locality but submitted them for examination to Mr. Tryon, of the Academy of Natural Sciences, who pronounced them all recent, and one of them as a species nowhere yet seen except in the Houston river, which flows along side of the plain, and the waters of which communicate with the wells, as described by Mr. Lesley some years ago.

Mr. Lewis had made a comparative collection of the same shells from the banks of the Houston and found the two suits identical.

On causing a number of pits to be dug he was surprised to find the surface stratum (three feet deep) to be a layer of these shells, most of the *unios*, &c., broken, but the gasteropods whole, mixed with pottery and embers. It is evidently a *kitchen trash deposit*. The shells did not extend beyond the area of the pottery. The Indians broke up the univalves to mix with the clay of the pottery, but the gasteropods must have been used only for culinary purposes.

He found under the layer of shells and pottery a layer of *local drift clay*, several feet thick, resting on the red gypsum salt muds, which are several hundred feet deep and occupy a basin a mile wide, eroded along an anticlinal arch of Lower Silurian limestones, the outcrops of which form the hill walls of the little enclosed secluded valley. The rocks dip  $20^{\circ}$  to  $30^{\circ}$  south-east; and from  $50^{\circ}$  to  $60^{\circ}$  north-westward towards the Houston river, outside of the enclosure. This erosion must have commenced when the Appalachian continent, crowned by Permian deposits, rose from the sea on the first construction of the anticlinal and synclinal folds. The salt clays then are probably of Trias age. That the gypsum is the result of the decomposition of the limestone layers is plainly shown in the shaft and tunnel workings; and it is confined to the walls of the basin, against which the horizontal salt-muds lie nonconformably.

Mr. Lesley embraced this occasion to make some remarks in opposition to the conclusions of Prof. Stevenson, expressed in his valuable Notes on South Virginia, read before this Society, Aug. 20, respecting the comparatively recent date of the great Virginia faults.

Prof. Stevenson does not positively assert that the faulting has succeeded the flexing by a longer or shorter interval of geological time, but he says: "It seems not wholly improbable that the faults are of later date than the disturbance which produced the comparatively gentle synclinal between

Wallen's ridge and the Clinch river;" and the whole tone of his concluding paragraphs leaves the impression that he assigns the Appalachian flexing to one age and the faults to another and later age. This would be in accordance with his opinions respecting the Pennsylvania anticlinals as preceding some of the coal deposits, published in his Reports of Progress KK and KKK of the Second Geological Survey of Pennsylvania.

Mr. Lesley said that his long study of the Coal Measures of the United States led him to entertain grave doubts of this. In fact he has repeatedly assigned the regular outspread and remarkably regular increase in the thickness of the Pittsburg coal bed towards the east, over the very large interval of country between its Ohio outcrops and its Maryland and Eastern Pennsylvania outcrops, as sufficient evidence that the Appalachian folds had no existence whatever up to the close of the Coal era.

This extensive study of the faults of Virginia and Tennessee in connection with the unbroken anticlinals of Pennsylvania had in like manner compelled him to see in them one single cause producing essentially the same effect in one and the same age.

Prof. Stevenson postulates the probability of later date for the faults on two classes of observations in Southern Virginia.

"1. That the course of the streams has not been determined by the lines of fault."

"2. That erosion along the faulted lines is essentially the same in character and extent with that in localities where no faults exist."

The second postulate Mr. Lesley considered essentially true, but held it as a proof of the community, not of the non-community of the faults with the other structural features.

He was obliged, however, to reject the first postulate. On the contrary, the topography illustrated by the maps and sections accompanying his paper on the Coal field of South Virginia, in Montgomery county, and his paper on Scott, Wise and Tazewell counties, Va. (Proc. Amer. Philos. Soc., Vol. IX, page 30, May, 1862, and Vol. XII, page 489, April, 1871) tell nothing more plainly than that the Clinch and other Southern river erosion is wholly and entirely and in detail most curiously determined by the faults, in the absence of which the whole water tree of that section of Virginia, and of all Eastern Tennessee would have been of a different character, in other words would have imitated the water-trees of Middle Pennsylvania, where such faults are unknown.

Mr. Lesley regretted that Prof. Stevenson was not present to explain and enforce his own views in opposition to this.

Dr. Barker read a letter from Dr. Henry Draper, of New York, announcing to the Society the first successful photographing of a nebula, the nebula of Orion, by himself, upon the 30th of September. Dr. Barker expressed his high satisfaction that this feat should have been accomplished first

in America, and by a member of this Society, and published in its Proceedings. He remarked on (1) the extreme sensitiveness of the plate, and (2) on the extraordinary perfection of the running machinery of the driving clock, which was required to hold the image steadily upon the plate for fifty minutes, ten minutes being hitherto considered the maximum.

The letter is as follows:—

271 MADISON AVENUE, NEW YORK,  
October 9th, 1880.

MY DEAR BARKER :—

I have succeeded in photographing the nebula in Orion. It took an exposure of fifty minutes which, as you can well imagine, was a hard test for the driving clock. This is the first time a nebula has been photographed. I used the new Clark triple objective of 11 inches aperture, mounted on the equatorial stand I made some years ago. This objective is especially corrected for the photographic rays.

The pictures show the mottled appearance of the bright portion of the nebula admirably. It will take some time to discuss the pictures taken since Sept. 30th, as comparisons must be made with the drawings of Lord Rosse, Bond and others.

The importance of the result turns on the fact that photographs will show with certainty any changes in the nebula and perhaps enable us to determine some of the laws ruling these elementary forms of matter. They may indicate the process of the genesis of solar systems.

If it suits your convenience will you call the attention of the Philosophical Society to this matter, and oblige

Yours truly,

HENRY DRAPER.

Pending nominations Nos. 904, 909 to 920 were read.

Mr. Price reported in behalf of the Committee that a discourse on the life and character of the late President of the Society, George B. Wood, M.D., LL.D., was delivered by Dr. Henry Hartshorne, in the hall of the College of Surgeons, on the 11th instant, and asked that 1000 extra copies be printed for circulation, which was so ordered; and the thanks of the Society presented to the College for the free use of its room.

On motion it was resolved that the Curators be authorized to permit a copy to be made of Martin's portrait of Franklin.

The ballot boxes being examined by the presiding officer,

the following persons were declared duly elected members of the Society.

Mr. Alvan Clark, of Cambridgeport, Mass.  
 Mr. Alex. E. Outerbridge, of the U. S. Mint.  
 Mr. Jacob B. Eckfeldt, of the U. S. Mint.  
 Mr. Patterson Dubois, of the U. S. Mint.  
 Mr. Lewis A. Scott, of Philadelphia.  
 Mr. Cadwalader Biddle, of Philadelphia.  
 Mr. Thos. H. Dudley, of Camden, N. J.  
 Mr. Isaac C. Martindale, of Camden, N. J.  
 Prof. Wm. Boyd Dawkins, of Manchester, Eng.  
 Dr. Daniel Draper, Ph.D., of New York City.

And the meeting was adjourned.

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*Stated Meeting, Nov. 5, 1880.*

Present, 11 members.

President, Mr. FRALEY, in the Chair.

Letters accepting membership were received from Mr. Alexander E. Outerbridge, Jr., dated U. S. Mint, Oct. 26; Mr. Jacob B. Eckfeldt, dated U. S. Mint, Oct. 28; Mr. Patterson Dubois, dated U. S. Mint, Oct. 19; Mr. Lewis A. Scott, dated 1806 Locust street, Philadelphia, Oct. 19; Mr. Cadwalader Biddle, dated 1420 Walnut street, Philadelphia, Nov. 4; Mr. Isaac C. Martindale, dated Camden, N. J., Oct. 10; Prof. Wm. Boyd Dawkins, dated Boston, Mass., Oct. 21; and Dr. Daniel Draper, dated Meteorological Observatory, Central Park, N. Y., Oct. 19.

Letters of acknowledgment were received from the Société Royale, Upsal (99-103 inclusive; List of Members, and Catalogue, Part III); Société Hollandaise, Harlem (104); K. B. Akademie, Munich (102, 103); Naturforschende Gesellschaft, Freiburg in Baden (102, 103); Société des Sciences Physiques et Naturelles, Bordeaux (96, 98-104 inclusive); and the Royal Society, Edinburgh (105).